

WHAT IS CLAIMED IS:

1. A solution treatment apparatus, comprising:

a treatment solution tank configured to store a treatment  
5 solution in which a substrate is to be immersed;

a first electrode in electrical contact with the substrate  
immersed in the treatment solution;

a second electrode disposed in said treatment solution tank,  
a voltage being applied between said second electrode and said first  
10 electrode;

a diaphragm disposed between the substrate and said second  
electrode; and

a diaphragm position varying mechanism configured to partly  
vary a position of said diaphragm.

15 2. A solution treatment apparatus as set forth in claim 1,  
wherein, in a state before the position of said diaphragm  
is partly varied, a portion of said diaphragm facing a center portion  
of the substrate is positioned closer to a substrate side than a  
portion of said diaphragm facing a periphery portion of the substrate.

20 3. A solution treatment apparatus as set forth in claim 1,  
wherein said diaphragm position adjusting mechanism moves a portion  
of said diaphragm facing a center portion of the substrate.

4. A solution treatment apparatus as set forth in claim 1,  
further comprising a controller configured to control said diaphragm  
25 position varying mechanism.

5. A solution treatment apparatus as set forth in claim 4,  
further comprising a sensor configured to partly measure a degree  
of solution treatment applied on the substrate,

wherein said controller controls said diaphragm position  
varying mechanism based on a result of the measurement by said sensor.

6. A solution treatment apparatus as set forth in claim 4,  
further comprising:

5 a measurement substrate having a plurality of electrodes;  
and

an ammeter configured to measure a current passing through  
each of the electrodes, wherein said controller controls said  
diaphragm position varying mechanism based on a result of the  
10 measurement by said ammeter.

7. A solution treatment apparatus, comprising:

a treatment solution tank configured to store a treatment  
solution in which a substrate is to be immersed;

a first electrode in electrical contact with the substrate  
15 immersed in the treatment solution;

a second electrode disposed in said treatment solution tank,  
a voltage being applied between said first electrode and said second  
electrode; and

a diaphragm disposed between the substrate and said second  
20 electrode, a portion of said diaphragm facing a center portion of  
the substrate being positioned closer to a substrate side than a  
portion of said diaphragm facing a periphery portion of the substrate.

8. A solution treatment method, comprising:

immersing a substrate in a treatment solution in a treatment  
25 solution tank and passing a current through the immersed substrate  
to apply solution treatment on the substrate; and

partly measuring a degree of the solution treatment applied  
on the substrate while the solution treatment is being applied on

the substrate, and partly varying a position of a diaphragm disposed in the treatment solution tank based on a result of the measurement, to adjust the degree of the solution treatment in the substrate.

9. A solution treatment method, comprising:

5 immersing a measurement substrate having a plurality of electrodes in a treatment solution in a treatment solution tank and passing a current through each of the electrodes of the immersed measurement substrate to apply solution treatment on the measurement substrate while measuring the current passing through each of the  
10 electrodes;

immersing a substrate in the treatment solution in the treatment solution tank and passing a current through the immersed substrate to apply solution treatment on the substrate; and

15 partly varying a position of a diaphragm disposed in the treatment solution tank based on a result of the measurement while the solution treatment is being applied on the substrate, to adjust a degree of the solution treatment in the substrate.